

REMARKS

In paragraph 1 of the Office Action it is indicated that the replacement drawing sheets received by the USPTO on October 6, 2003 are approved by the Examiner. Applicant appreciates the approval thereof. Applicant has noticed that Fig. 2 should be labeled "Prior Art", and a drawing correction is submitted herewith for the Examiner's review.

In paragraph 2 of the Office Action claims 3, 11, 20 and 28 are objected to, stating:

"Claims 3, 11, 20, 28 are objected to because of the following informalities: in claim 3, line 4, "said first" should be changed to --a first--; in claim 11, line 3, "a second" should be changed to --said second--; in claim 20, line 4, "said first" should be changed to --a first--; in claim 28, line 3, "a second" should be changed to --said second--. Appropriate correction is required."

Responsive thereto, Applicant has made the appropriate corrections to claims 3, 11, 20 and 28 to cure this ground of objection.

In paragraphs 3 and 4 of the Office Action claims 1-3, 6, 10-14, 18-20, 23, 27-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Carey et al (US Pat 6266218), stating:

"As per claims 1, 2, 3, 6, 10, 18, 19, 20, 23, 27, 30-32, Carey et al shows a spin valve MR head in figure 10 that has: a free magnetic layer 78 with a planar upper surface that extends across the central and end regions of the free layer; two anti-parallel coupled magnetic layers 84/96 on the end regions of free layer 78 (including being on the planar upper surface of the free layer); nonmagnetic Ru layer 98; magnetic seed layer 86 disposed upon the upper planar surface of the end regions of the free layer 78 with a first one 84 of the two magnetic layers disposed upon the seed layer 86; the net biasing magnetic field is in the same direction as the free layer magnetization.

As per claims 11, 12, 28, and 29, Carey et al sets forth in col. 4, lines 15-21 that when CoPtCr is used, then a third and fourth magnetic layer (e.g. Co, with CoFe as an inherent variant of Co based alloys) is used as a sub-layer to the anti-parallel magnetic layers.

As per claims 13 and 14, Carey et al shows a spin valve MR head in figure 10 that has: a free magnetic layer 78 with a planar central portion and two outwardly disposed planar end regions (i.e. the two outer sloping sides of the free layer 78); a magnetic seed layer 86 disposed upon the respective two planar end regions of the free layer 78; two anti-parallel coupled magnetic layers 84/96 on the end regions of free layer 78; nonmagnetic Ru layer 98; a first one 84 of the

two magnetic layers disposed upon the seed layer 86; and the net biasing magnetic field is in the same direction as the free layer magnetization.” Additionally, with regard to Applicant’s prior amendments to independent claims 1, 18 and 30, in paragraph 6 of the Office Action it is indicated that Applicant’s arguments filed 10/6/03 and attached to paper number 8 have been fully considered but they are not persuasive, stating:

“Applicant asserts on page 12 that “Turning now to Applicant’s independent claims 1, 18 and 30, a significant distinguishing limitation in these claims from the teachings of Carey is that Applicant’s antiparallel coupled magnetic layer structure is fabricated **directly upon** (emphasis added) the upper surface of the end portions of the free magnetic layer.” However, it is noted by the examiner that the features upon which applicant relies (i.e., “directly upon”) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Again, as broadly claimed, a layer that is “upon” another layer need not be “directly upon” the other layer, but may have intervening layers there between.

Secondly, with regard to the placement of the magnetic seed layer 86 of Carey et al, this layer is “directly upon” the two sloped planar end sides of the free layer 78 (see fig. 10) while magnetic seed layer 86 is also “upon” the upper planar surface of the free layer 78 with interceding layers 82/88 there between.”

Responsive thereto, Applicant has amended independent claims 1, 18 and 30 to provide further limitations that distinguish the present invention from the teachings of Carey. Applicant has also amended dependent claims 3, 20 and 31 to further distinguish the teachings of Carey.

Specifically, regarding independent claims 1, 18 and 30, in accordance with the Examiner’s comments in paragraph 6 of the Office Action, quoted above, Applicant has inserted the word directly into claim 1, thereby stating that the anti-parallel coupled magnetic layer structure is disposed directly upon the upper surface of the free magnetic layer. Claims 1, 18 and 30 already include the limitation that the free magnetic layer has a planar upper surface that extends across the central region and across each of the end regions, which distinguishes it from the Carey et al teaching that the end regions have two sloped planar end sides. Applicant respectfully submits that by this amendment, independent claims 1, 18 and 30 have been distinguished from the teachings of the prior art.

With regard to dependent claims 3, 20 and 31, Applicant has added the further limitation that the magnetic seed layer of the anti-parallel coupled magnetic layer structure is disposed directly upon the upper surface of the free magnetic layer at the end regions of the free magnetic layer, and that a first magnetic layer is disposed directly upon the seed layer; all as is more fully

set forth in these dependent claims. Based on the Examiner's comment in paragraph 6 of the Office Action, Applicant therefore respectfully submits that these dependent claims recite further limitations that are not taught by nor obvious from the cited prior art.

With regard to independent claim 13, Applicant has added the further limitation with regard to the free magnetic layer that the planar end regions are coplanar with the planar central portion of the free magnetic layer. Additionally, the limitations have been added that the magnetic seed layer is disposed directly upon the planar end regions, and the first magnetic layer is disposed directly upon the seed layer. As indicated in paragraph 6 of the Examiner's comments, Carey et al teaches two sloped planar end sides with a magnetic seed layer being directly upon them. However, the sloped end sides are not coplanar (as set forth in amended independent claim 13) with the central portion of the free magnetic layer. Applicant therefore respectfully submits that independent claim 13 recites limitations that are neither taught by nor obvious from the cited prior art.

With regard to the remaining rejected dependent claims, Applicant asserts that these claims are allowable in that they depend, either directly or indirectly, from an allowable base claim.

In paragraph 5 of the Office Action claims 4, 5, 7-9, 15, 16, 17, 21, 22, 24-26, and 33-35 are objected to as being dependent upon a rejected claim but allowable if rewritten in independent form. Responsive thereto, Applicant appreciates the indication of allowable subject matter. However, in that Applicant has amended the independent claims in the present application to be allowable, Applicant respectfully declines to amend these claims.

Having responded to all of the paragraphs of the Office Action, and having amended the claims accordingly, Applicant respectfully submits that the Application is now in condition for

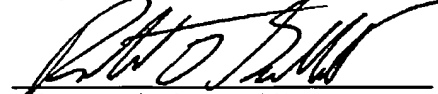
allowance. Applicant therefore respectfully requests that a Notice of Allowance be forthcoming at the Examiner's earliest opportunity. Should the Examiner have any questions or comments with regard to this amendment, a telephonic conference at the number set forth below is respectfully requested.

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Respectfully submitted,



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Certificate of Transmission (37 CFR 1.8)

I hereby certify that this paper (along with any referred to as attached or enclosed) is being transmitted on the date shown below to the Commissioner for Patents, Washington, D.C.

Via facsimile to: (703) 872-9306

February 13, 2004
(date)


(Signature of Patricia Beilmann)